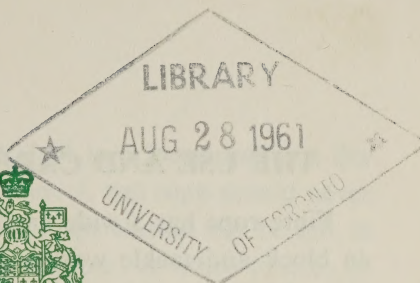
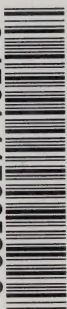


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# THE USE AND CARE OF FIBRE ROPE

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**ACCIDENT PREVENTION SERIES No. 9**

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**Hon. Michael Starr**  
Minister

**George V. Haythorne**  
Deputy Minister

## THE USE AND CARE OF FIBRE ROPE

Fibre rope has a wide variety of uses, since it is used in block and tackle work, for scaffolds, marine operations, life lines and lanyards.

Materials from which fibre ropes are made vary. Some are made of natural fibres, others from synthetic.

Natural fibres tend to deteriorate with age although the better fibres resist weather and abrasion satisfactorily.

*Manila*—is the best of the natural fibres. It is strong, durable, smooth, hard and pliant.

*Sisal*—is not as strong as manila and it is stiff and may have a tendency to splinter.

*American Hemp*—is approximately the same strength as sisal but is soft and will not stand abrasion.

*Mexican sisalana*—is similar to sisal although not as strong.

*Jute and Cotton*—approximately half the strength of manila but should not be used for material handling.

Synthetic fibres as a whole, are more satisfactory than natural fibres, however, their high initial cost usually limits their use.

*Nylon*—is strong, flexible, durable and easy to handle.

It is resistant to moisture and alkalies but should not

be used near acids. It will stand freezing temperatures but will melt at 480°F.

*Unolyn*—because of its elasticity and resistance to impact is especially desirable for life lines.

*Glass* rope is strong but is not moisture resistant or as flexible as other synthetic fibre-ropes.

*Saran* rope is resistant to moisture and a number of chemicals. It should never be exposed to high temperatures or abrasion.

## **Inspection**

New rope should be thoroughly inspected throughout its length before being placed in service to determine that no part of it is damaged or defective.

After being placed in service, rope should, under ordinary circumstances, be inspected at least every thirty days, oftener if it is used to support scaffolding on which men work. If it is exposed to acids or caustics, it should be inspected daily.

Inspection should mean examination of the entire length of the rope for wear, abrasions, broken or cut fibres, displacement of yarns or strands, variation in size or roundness of strands, discoloration, or rotting. To inspect the inner fibres, the rope should be untwisted in





several places to see whether the inner yarns are bright, clear, and unspotted.

Rope loaded over 75 per cent of its breaking strength will be permanently injured. Damage from this cause may be detected by examination of the inside threads, which will be broken to an extent governed by the amount of the overload.

A rope that has lost its feel of pliability or stretch, or in which the fibres have lost their luster and appear dry and brittle, should be replaced by a new rope.

Rope should not be kinked. Even a moderate strain may overstress the fibres at the point of the bend, producing a serious defect difficult to find.

### **Care of Rope**

Rope should be cleaned before being stored. It may be washed with a moderate hose stream and remaining dirt may be shaken out when the rope has dried.

The use of wet rope or rope reinforced with metallic strands near power lines and other electrical equipment is dangerous.

Rope deteriorates if saturated with water and not properly dried out. Alternate wetting and drying causes more rapid deterioration than constant wetness. A wet

rope should be hung up or laid in a loose coil in a dry place until it is thoroughly dry. A wet rope should never be left where it may freeze. Rope should not be left in contact with radiators, steam pipes, or other sources of heat, which may dry out the oil in the fibre.

Rope should not be stored or used where it will be exposed to acids or acid fumes. Strong alkali, drying oil, and paint are also injurious. Exposure to acids or caustics causes quick deterioration, usually indicated by black or brown spots.

Rope should not be dragged on the ground or against rough or sharp objects.

Sharp bends over an unyielding surface cause extreme tension on the fibres. To make a rope fast, an object with a smooth round surface of sufficient diameter should be selected. If the object does have sharp corners, pads of burlap or haggling should be used.

When lengths of rope must be joined, they should be spliced and not knotted. A well-made long splice will retain up to 90 per cent of the strength of the rope, but a knot only 50 per cent.



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